

User manual

VIDITECH 2500AP

VIDITECH 2500AP/E



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Protection class II. device



Warning, see safety instructions in manual

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1 INTRODUCTION

ViDiTech 2500AP is a six channel digital measuring instrument for measuring and evaluating shaft displacement (dilatation) and temperature of rotating machines and can be also used as an axial fuse.

1.1 Number of measuring channels

- 2x relative shaft displacement – possibility of A,B method or A+B method selection + cone measuring possibility
- 4x temperature measuring (Pt100)

Each channel contains limit L1 (warning) and L2 (danger), main channels for shaft displacement measuring contains also from positive and negative value of position limit setup separately.

Inductive proximity sensors are used for shaft displacement measuring.

1.2 Current outputs and relays

The instrument communicates with superior system through 6 current outputs (4-20) mA.

- 2x displacement (A, B)
- 4x temperature (A, B, C, D), or 3x temperature (A, B, C) a 1x shaft speed

The relays ensure complete protection of the diagnosed machine.

- OK relay (ensuring a trouble free state of the instrument)
- L1 relay (user defined warning of the raised value)
- L2 relay (user defined warning of a high value)

Position channels (A, B) has their own buffered outputs on BNC connectors.

1.3 Communication interface

- ModBus RTU (2500AP version) / ModBus over Ethernet (2500AP/E version)

The communication interface ensures connection to the Ethernet, through which it is possible to monitor and control the instrument. It is possible to choose between ModBus RTU (through RS485) and ModBus over Ethernet (connectable using standard RJ-45 connector).

1.4 Software support allows:

- Online operating and watching the instrument
- Records history storing and creating
- Complete instrument control

1.5 Instrument attachment dispositions

- Small size – it is also possible to place the instrument into a separate (industry) box
- Mounting – easy assembly using a DIN mounting.

2 OUTER DESCRIPTION OF THE INSTRUMENT

2.1 Keyboard

The keyboard is functionally divided into 3 main areas (display, control buttons and signaling of instrument state), see Fig. 1. In the central part a visor for a four-line display is placed. Under the display the control panel in form of four buttons is situated. Arrow buttons *up* ▲ and *down* ▼ serve to browse the menu of the instrument, required options are confirmed by the button *enter* ✓ and cancelled by the button *cancel* ✕. Above the display LED-diodes (OK, L1, L2) are placed, reflecting the current state of the measuring unit and the diagnosed object. The name of the instrument is stated in the heading.



Fig. 1 - Front view of the instrument control panel

2.2 Terminals

Terminal boards in the bottom and top part of the instrument are used to connect inputs and outputs. This access enables standard attachment of more devices in close proximity and is very user friendly.

Terminal board in the bottom part contains input for power supply +24 V, outputs for relay OK, L1 and L2, reset of relay L2 and a communication interface ModBus.



Fig. 2 - Description of the bottom terminal board

Terminal board in the top part of the instrument contain inputs for:
proximity sensors (channels A, B)

temperature sensors (channels A, B, C, D)

logical inputs TRG (Trigger) and SPD (speed)

Terminal boards also contain current outputs (4 – 20) mA for displacement (A, B), temperature T (T_A , T_B , U_1) and universal output U_2 (temperature / speed).

38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
⊕	↑	IN+	CMP	SUP	⊕	↑	IN+	CMP	SUP	⊕	↑	IN+	-24V	A/X	↑	B/Y	TM	SPD	TRG	↑	24V
Sensor A/X				Sensor B/Y				Sensor C				4-20				LOG inputs					

60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39
SP	IN	CM	SP	CM	SP	CM	SP	CM	SP	IN	CM	CM	⊕	↑	↑	↑	⊕	↑	↑	↑	⊕
PT100A				PT100B				PT100C				PT100D				4-20				4-20	

Fig. 3 - Description of the top terminal board.

2.3 Attachment of the instrument

The rear side of the instrument is equipped with a standard DIN moulding (comfortable assembly). It is possible to place the instruments close to each other (holes for air cooling are placed in vertical direction).

2.4 Box

Fully occupied instrument including a holder for the DIN moulding and fully connected terminal boards has maximal dimensions (height/width/depth) 137/90/108 mm (see Fig. 4). The primary box is made of steel with a surface treat against corrosion and is surface varnished. The back side of the box is made of anodized aluminium plate (for heat dissipation). Used material is selected with regard to high endurance against electromagnetic disturbance.

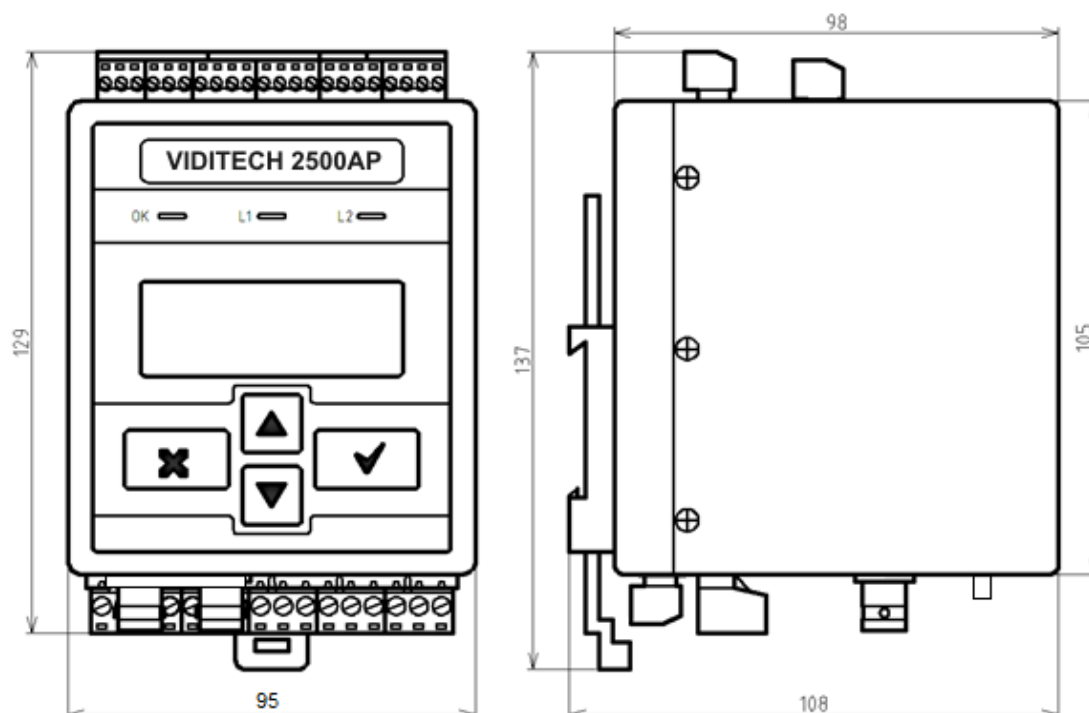


Fig. 4 - Mechanical dimensions of the instrument.

3 INITIATION OF THE INSTRUMENT TO OPERATIONAL STATE

3.1 Initialization

After turning on the power supply the instrument automatically initializes, which consists of stabilization of filters and initiation of the internal test (Selftest). The behavior is the same as the restart of the unit (see section 3.3)

3.2 Main screen

Main display shows a preview of the actual position values of the shaft (A, B) – see Fig. 5. These values are stated numerically. A bar graph is used to display ranges, which also shows set limit values (L1 – warning, L2 – danger). Next to the bar graph a percentage range to limit L2 is displayed. Main screen also includes two temperatures (A, B). If no temperature sensors (PT 100) are connected to these channels, N/A is displayed.

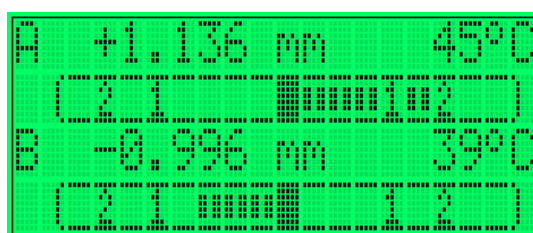


Fig. 5 - Main screen of the instrument after initialization into operating condition.

In case of mode A+B selected, only one value is displayed on the main screen – the addition of both channels signal. Minimal and maximal value of the displacement is also shown (see Fig. 6).

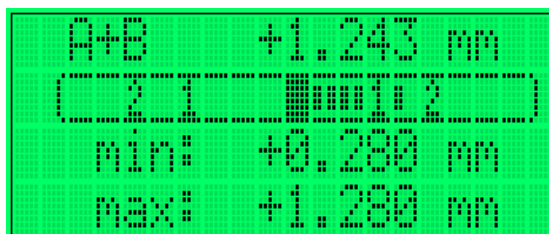


Fig. 6 - Main screen of the instrument after initialization into operating mode in A+B mode

3.3 Instrument restart

Restart of the instrument is possible by simultaneously pressing buttons ESC and ✓ for at least 2 s. Afterwards the following are displayed: name of the instrument and instrument FW version, hardware and FW of the middle board. After these system data are presented, the filters are stabilizing and the *Main screen* is displayed (Fig. 7).

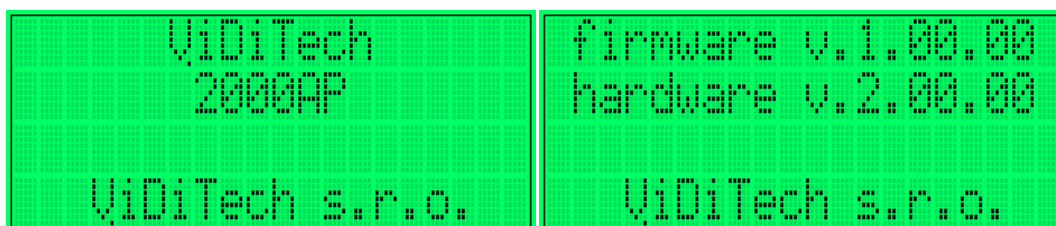


Fig. 7 - Display preview during restart the instrument.

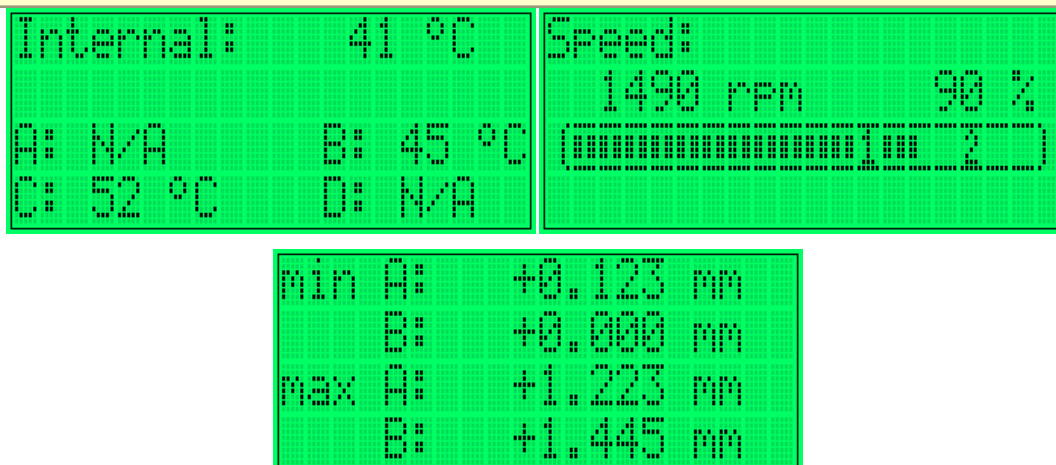


Fig. 9 - Main menu of the instrument

4.1 Displacement limits

Using ▼ arrow the information about exceeding limits L1L, L1H, L2L, L2H for main displacement values is shown. If any limit of the measuring parameter is exceeded, the symbol L1 or L2 is shown instead of *dash* -. Limits LxL and LxH means LOW or HIGH value of the limit – it is possible to set the limit for positive or negative displacement, or it is possible to secure extension and reduction of the shaft simultaneously.

5.1 Speed and temperature limits

Using ▼ arrow the information about exceeding limits L1 and L2 for temperatures and shaft speed is shown. If any measured parameter exceeds the set limit, instead of the *dash* – an exceeded limit (L1, L2) is displayed.

5.2 Temperatures

By pressing ▼ again, temperatures in all channels (A, B, C, D) are displayed. N/A is displayed if any channel has no temperature sensor connected. On the first line of the menu the internal temperature of the instrument is displayed.

5.3 Shaft speed

By pressing ▼ again shaft speed is displayed. The values are stated numerically (RPM value) and as a bar graph, which shows limit values also. Next to the bar graph the percentage range to the L2 is shown.

We recommend using of eddy current based sensors for speed measuring. Other sensor using (e.g. inductive) – please consult with the manufacturer of the device.

5.4 Minimal and maximal value

By pressing ▼ again actual minimal and maximal displacement values are shown. These values are remembered until erasing in menu by user. This screen is not displayed while A+B mode is selected and minimal and maximal values are shown on the main screen.

6 NESTED MENU

The nested menu can be shown by pressing **✓** button and left by pressing **✕** button. This menu includes the following options (Temperature trends, device setup, Zero pos. setup, Channel setup, Limits setup), see Fig. 10:

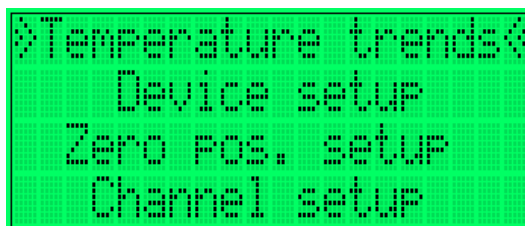


Fig. 10 - Preview of the nested menu options

6.1 Temperature trends

Trends contain long-term records of temperature, divided into three time intervals, see Fig. 11.

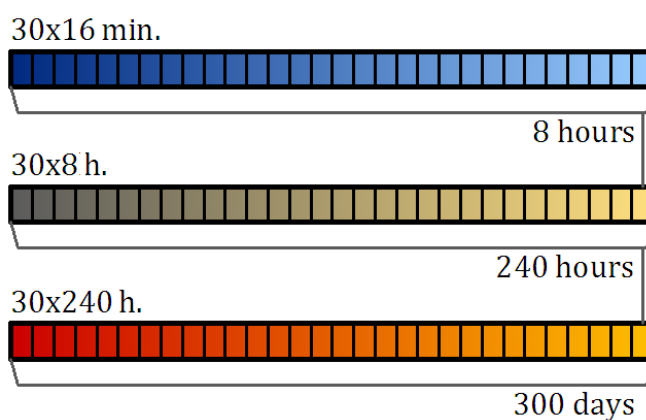


Fig. 11 - Scheme of trend creation

6.1.1 First time interval

The basic time interval, which is averaged for trend calculation, is *16 minutes*. This enumeration is displayed graphically in the form of 30 lines of basic time intervals. On the display the time interval is shown in two steps (*0 min – 224 min*) and after pressing **▼** (*240 min – 464 min*). During enumeration of the trend there is a change on the display in the bottom line between time range and maximal/minimum value of the given record, Fig. 12.

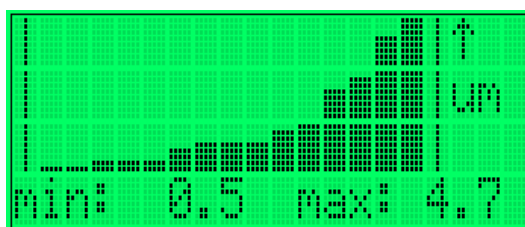


Fig. 12 - Showing of the trend of the first interval

6.1.2 Second time interval

The second time interval is displayed after another press of the **▼** button. The display is analogous to the previous case. Every line of this interval is calculated as a sum from the

first interval. The total range is again divided into two screens (*0 hour – 112 hours* and *120 hours – 232 hours*).

6.1.3 Third time interval

The third time interval is solved as the previous. Every line is calculated as a sum of the previous interval. The total range is again divided into two screens (0 days – 140 days and 150 days – 290 days).

6.2 Device setup

The password (77320) is requested after entering this item. The password is inserted by ▲▼ and confirmed by the ✓ button. The first displayed screen obtains items regarding the instrument communication, see Fig. 13. For a change request of the default parameter press ✓ on the required line, then input the change and confirm by pressing ✓ or cancel the selection by pressing ✕.

First menu screen of the instrument setup (default values are in bold)

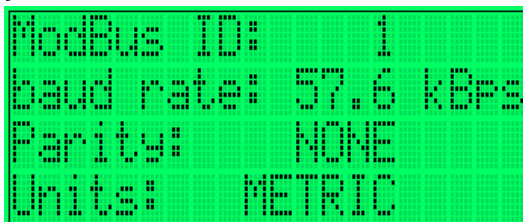
Instrument ID (1 – 63)

The identification number serves for explicit instrument designation within the ModBus bus line.

transfer speed (4,8; 9,6; 19,2; 38,4; **57,6**; 115,2) kBps

parity (even/odd/**none**)

units (**metric**/imperial)



```

ModBus ID:      1
baud rate: 57.6 kBps
Parity:        NONE
Units:        METRIC
  
```

Fig. 13 - Instrument setup I. – communication parameters and units.

The next menu screen of the instrument setup offers the following selection

Measuring method: **A, B** / A+B

“A, B” method means, that the instrument is dual-channel and measures shaft displacement in two independent channels, for which individual ranges, limits values and sensitivities can be set. “A+B” method means, that the instrument measures sum of both channels.

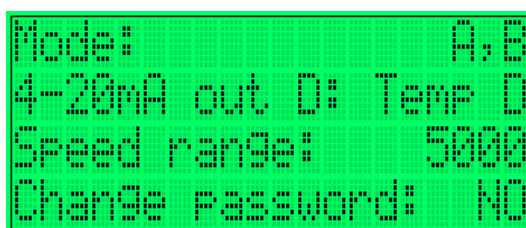
Current output D setup: **temperature D** / shaft speed

Speed measuring range: 50/100/200/500/1000/**2000**/5000/10000

(revolution lower, than 30 RPM are evaluated as zero)

Password change: **ANO/NE**

Password to enter *Machine setup* can be defined by the instrument operator. Nevertheless the default password noted in the manual is always functional (protection from operator mistake).



```

Mode:          A,B
4-20mA out D: Temp D
Speed range:   5000
Change Password: NO
  
```

Fig. 14 - Device setup II.

Volba logických vstupů NPN / PNP (obr. 14)²:

Reset relays – Reset input (cannot be changed)

Login1 (not used) – not used

Speed input – RPM input

Login3 (not used) – not used

```

Reset input:      NPN
Login1(not used): N/A
Speed input:      NPN
Login3(not used): N/A
  
```

Fig. 15 - Device setup III. – logical inputs selection.

Display contrast and speed sensor setup

Display contrast: (0...100)%

Pulses per revolution: (1...20)

Setting of the pulses per route number server for speed input adaptation to the technical performance of the speed measuring place. Input signal is de facto divided by the number corresponding the number of pulses per route.

```

Display contrast:
                  85 %
Pulses per
revolution: 10
  
```

Fig. 16 - Device setup IV.

6.3 Zero position setup

Sensors setup is done according to the transfer characteristic (output voltage as a function of the displacement) of the sensor and mostly to the middle of the linear band of the sensor. Entering the menu is secured by password 77320. Measured voltage of both channels is shown on the screen. As soon as the sensors are set to the zero position, this zero position is stored to the instrument by pressing ✓ button (set is done in the channel, which is selected by cursor, channel B will be set in Fig. 17) and after pressing ✕ button the instrument asks for saving new zero position values – necessary to confirm saving.

```

      Zero      Actual
A:  8.112V     10.933V
B:  0.000V     11.566V
  Set A      >Set B<
  
```

Fig. 17 - Zero position of the sensors setup

² The instruments of 152xxx series support NPN setting only!

6.4 Channels setup

Entering the menu is secured by password, which is default set to 77320.

Sensitivity of the sensors can be set on the first screen in the menu.

Sensitivity : OFF / (0.01 – 99.99) mV/μm, default value is 8,00 mV/μm

Range: (0,5;1,0; 2,0; 5,0; 10,0; 20,0) mm, default value is 5,0 mm

Selected range is whole absolute measuring range. Real range is always from $-\text{RANGE}/2$ to $+\text{RANGE}/2$. E.g. when the range is set to 5,0 mm, the instrument measures from - 2,5mm to +2,5mm.

Cone: YES/NO

Cone ratio: 0.100 – 60.000

The instrument allows extending its measuring range using cone measuring function.

This can be turned on by *Cone* choice in menu and appropriate cone parameters setup by *Cone ratio* parameter.

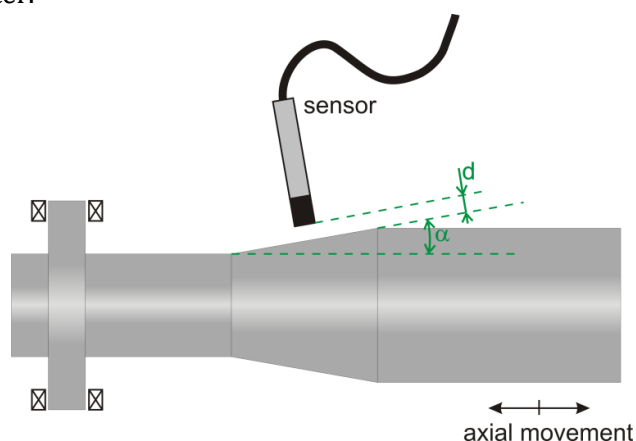


Fig. 18 - Schematic principle of axial position measuring on the cone plane.

Cone ratio is multiplication constant serving for increasing measured value d . The size of the constant is set by following formula:

$$\text{Cone ratio} = \frac{1}{\sin \alpha}$$

Cone ratio for selected angle values can be seen in tab. 1:

Tab. 1 - Cone ratio values as a function of the cone angle

Angle [°]	1	2	3	4	5	6	7	8	9	10	11	12
Cone ratio	57,299	28,654	19,107	14,336	11,474	9,567	8,206	7,185	6,392	5,759	5,241	4,810
Angle [°]	13	14	15	16	17	18	19	20	21	22	23	24
Cone ratio	4,445	4,134	3,864	3,628	3,420	3,236	3,072	2,924	2,790	2,669	2,559	2,459
Angle [°]	25	26	27	28	29	30	31	32	33	34	35	36
Cone ratio	2,366	2,281	2,203	2,130	2,063	2,000	1,942	1,887	1,836	1,788	1,743	1,701
Angle [°]	37	38	39	40	41	42	43	44	45	46	47	48
Cone ratio	1,662	1,624	1,589	1,556	1,524	1,494	1,466	1,440	1,414	1,390	1,367	1,346
Angle [°]	49	50	51	52	53	54	55	56	57	58	59	60
Cone ratio	1,325	1,305	1,287	1,269	1,252	1,236	1,221	1,206	1,192	1,179	1,167	1,155
Angle [°]	61	62	63	64	65	66	67	68	69	70	71	72
Cone ratio	1,143	1,133	1,122	1,113	1,103	1,095	1,086	1,079	1,071	1,064	1,058	1,051
Angle [°]	73	74	75	76	77	78	79	80	81	82	83	84
Cone ratio	1,046	1,040	1,035	1,031	1,026	1,022	1,019	1,015	1,012	1,010	1,008	1,006

Invert channels: YES/NO – serves for signals in both channels inversion

Min/max reset: YES/NO – erases the memory of min/max displacement values

Temperature trends reset: YES/NO

Sensitivity [mV/um]		Range channel A:	
channel A	8.00		5.0 mm
channel B	4.00	Range channel B:	
			5.0 mm
Cone ch.A:	YES	Invert ch.A:	YES
ch.B:	NO	ch.B:	NO
Cone ratio A:	0.223x	Reset ch.A:	NO
B:	1.000x	min/max ch.B:	YES
Reset temp. trends			
ch.A:	NO	ch.C:	NO
ch.B:	YES	ch.D:	NO

Fig. 19 - Channels setup preview

6.5 Limits setup

The limits are set for all measured values simultaneously (in one menu). For entering the several menu items it is necessary to insert the password (default 77320)

It is possible to set both limits (L1 and L2) for both displacement channels (A, B) – both for LOW and for HIGH. Exceeding time for all parameters is other additional parameter. Its value can be set in range (0 – 10) s. This time means a time, for which the value must be higher, than set limit, for activating limit relay. Increment for displacement is 1% from the measuring range, increment for time is 0,2s.

It is possible to set L1 and L2 with their time for shaft speed – similar as previous. Increment for speed is 1% of the range, increment for time is 0,2s.

Temperature limits can be set for all channels (A, B, C, D). Limit can be enabled by setting the value or disable (choosing OFF value). In case of unconnected temperature sensors it is impossible to set the limit and N/A stays next to the channel name. Range for the temperatures limits is 20°C ... 120°C with increment of 1°C.

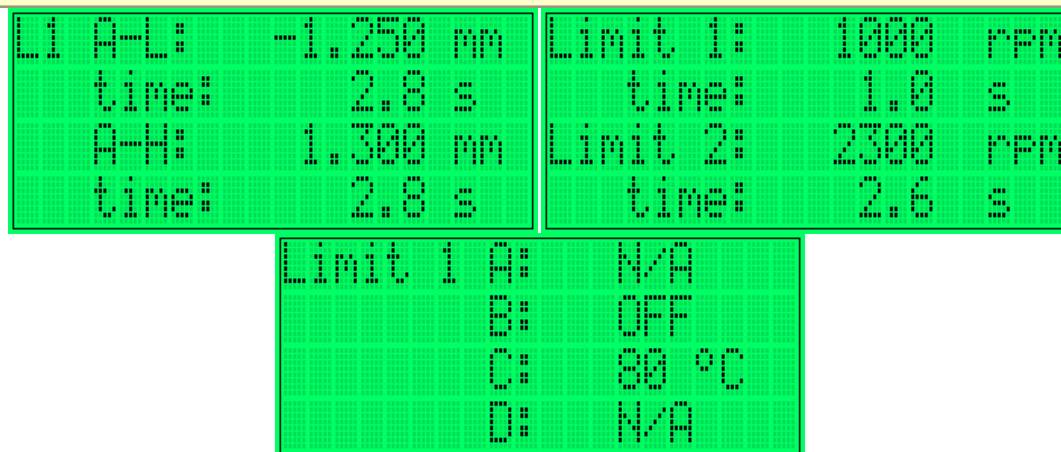


Fig. 20 - Limits setup

7 DC OUTPUTS

The instrument has 6 current outputs (4-20) mA for connection to the supervising systems. Ranges of all current outputs can be seen in the following table.

Terminal	-RANGE/2	+RANGE/2	0mm	Note.
A/X (č. 24)	4mA	20mA	12mA	Valid for mode A,B
B/Y (č. 22)	4mA	20mA	12mA	Valid for mode A,B
A/X (č. 24)	4mA	20mA	12mA	Valid for mode A+B
B/Y (č. 22)	2mA	2mA	2mA	Valid for mode A+B

Terminal	0 (°C/RPM)	+RANGE	Note.
T _A (46)	4mA	20mA	
T _B (44)	4mA	20mA	
T _C (42)	4mA	20mA	
T _D (40)	4mA	20mA	Configurable output temperature / speed Range = speed range or 150°C

8 TERMINAL DESCRIPTION

Nr.	Labeling	Description
1		Main grounding terminal
2		OK relay
3		
4		
5		L1 relay
6		
7		
8		L2 relay
9		
10		
11		L2 relay
12		
13		

14		Grounding terminal
15	B	ModBus – pole B
16	A	ModBus – pole A
17	24V	Power supply voltage for logical sensors for LOG inputs (galvanically separated from 24V on terminal 61/63)
18	↓	Ground potential (GND) – galvanically separated from GND on terminal 62/64
19	TRG	Synchronizing input (signal)
20	SPD	Input for speed sensor (signal)
21	TM	Input for sensor (signal) activating Trip Multiply
22	B/Y	DC output (4-20) mA- channel B, axial position
23	↓	Ground potential (GND) – galvanically separated from GND on terminal 62/64
24	A/X	DC output (4-20) mA- channel A, axial position
25	-24V	Power supply -24V
26	IN+	Input of the sensor C
27	↓	Ground potential (GND) – galvanically separated from GND on terminal 62/64
28		Grounding terminal
29	SUP	Power supply (-24V) for eddy current sensor, channel B
30	CMP	Compensated input of electrodynamic sensor of vibration velocity (not used for AP instrument)
31	IN+	Signal input of position sensor B
32	↓	Ground potential (GND) – galvanically separated from GND on terminal 62/64
33		Grounding terminal
34	SUP	Power supply (-24V) for eddy current sensor, channel A
35	CMP	Compensated input of electrodynamic sensor of vibration velocity (not used for AP instrument)
36	IN+	Signal input of position sensor A
37	↓	Ground potential (GND) – galvanically separated from GND on terminal 62/64
38		Grounding terminal
39		Grounding terminal
40	U ₂	DC output (4-20) mA – channel 2, universal (temperature D/revolutions)
41	↓	Ground potential (GND) – galvanically separated from GND on terminal 62/64
42	U ₁	DC output (4-20) mA – channel 1, universal (temperature C)
43		Grounding terminal
44	T _B	DC output (4-20) mA – channel B, temperature Pt100
45	↓	Ground potential (GND) – galvanically separated from GND on terminal 62/64
46	T _A	DC output (4-20) mA – channel A, temperature Pt100
47,51		Grounding terminal
48 52	CM	Negative pole of the temperature sensor PT100: PT100D PT100C

55 58		PT100B PT100A
49 53 56 59	IN	Signal input of the temperature sensor PT100: PT100D PT100C PT100B PT100A
50 54 57 60	SP	Positive pole of the temperature sensor PT100 power supply: PT100D PT100C PT100B PT100A
61	24V	Power supply – positive pole
62	0V	Power supply – negative pole
63	24V	Power supply – positive pole – redundant
64	0V	Power supply – negative pole - redundant
65		Grounding terminal
66	RST	Reset relay input
67		Ground potential (GND) – galvanically separated from GND on terminal 62/64

9 INPUT STAGE SWITCHES POSITION

There are input stage and sensor supply switches in the rear side of the instrument. It is possible to modify the AP instrument to any other supported type by their switch (and simultaneously update of FW). **Illegal manipulation with the switches can cause permanent damage of connected sensors.** Correct position for AP instrument is as following:

B -24 V	CMP	A -24 V
		
ICP	DIR	ICP
Proximity sensor (eddy current)		

Purpose of particular switches:

- ICP/-24V – switches between ICP (current supply +24V/5mA) and voltage supply(-24VDC).

These are set for each channel separately.

- CMP/DIR – used for connection of passive speed sensor (position CMP) or for connection other sensors – acceleration sensors, distance sensors (position DIR. This is set for both channels at once.

10 MOST COMMON CAUSES OF MALFUNCTION

The instrument Viditech 2500AP has its own internal diagnostical functions, which are carried out independently on safety appliances and diagnostical activity. If the instrument discovers any errors, it informs the user using a notification on the display and turns off the OK relay. In this case the defect must be removed without delay

Malfunction	Description	Possible cause/removal
#1 Internal error	Fault of the channel A input amplifiers	Malfunction of instrument, repair by manufacturer needed.
#2 Internal error	Fault of the channel B input amplifiers	Malfunction of instrument, repair by manufacturer needed.
#3	Not used	
#4	Not used	
#5	Not used	
#6	Not used	
#7 Internal error	Fault of analog part power supply	Malfunction of instrument, repair by manufacturer needed.
#8 Case overheated	Instrument overheated above 90 °C	Turn off the instrument, cool down, or secure better thermal conditions for the instrument.
#9 Internal error	Fault of the autonomous instrument memory controls (RAM and FLASH)	Malfunction of instrument, repair by manufacturer needed.
#10	Not used	
#11 Internal FW error	Internal fault state of the instrument FW	Restart needed, or (if malfunction continues), repair by manufacturer.

Error #11 subtype

Error subtype #	Meaning
1	Full front for analysis calculation
2	No free space for long calculation
3	Timer start error
4	Couldn't register asynchronous function
5	Attempt to register already registered asynchronous function
6	Couldn't register synchronous function
7	Attempt to register already registered synchronous function
8	Error sending result of asynchronous operation
9	<i>Attribute registration error(not used)</i>
10	Full front for write/read from eeprom
11	Wrong number of interrupt
12	Nonregistered function for interrupt handler
13	Wrong number of interrupt when registering interrupt handler
14	Attempt to reregister already registered interrupt handler function
15	Attempt to delete registration of interrupt handler, with number out of range of all interrupts
16	<i>Full front "memory management"(not used)</i>
17	Another sampling can't start(full front)
18	Full front "machine event"
19	Full buffer for sampling
20	Full buffer for ModBus messages
21	RAM error for analysis

11 TECHNICAL SPECIFICATION

11.1 Overall

Supply voltage	18 to 36 V DC, recommended wire area 2,5 mm ² for SE terminal
Power consumption ³	max. 8 W
Operational temperature	0 to + 65 °C
Relays output load	8A/250VAC
Protection	IP20
Housing material	metal, painted
Dimensions	approx. 95 x 106 x 80 (W x H x D)
Mass	approx. 700 g
Terminals	detachable terminal board, maximal wire area 2,5mm ² (bigger terminals), 1,5 mm ² (smaller terminals)
Instrument type	dual-channel
Internal impedance:	100 kΩ ± 10 %
Storage:	SDHC, up to 32GB, we recommend industrial SD card using
Real time-clock accuracy:	max. ±1s/day

11.2 Accuracy

Frequency range	(0 ... 2) Hz
- Relative displacement - Temperature: - Shaft speed - DC outputs	± 1% from measured value ± 20μm - Pt100 sensor: ± 2 °C in band 10 °C to 150 °C 10 ... 65000 RPM, ±0,2% ± 1digit 1 ... 20 pulses per revolution ±2 % from measured value ±5 % at 2 mA output current
Units	mm / mil, °C / °F
Measuring ranges	0,5; 1,0; 2,0; 5,0; 10,0; 20,0 mm
Sensor sensitivity	OFF ... 99,99 mV/μm with 0,01 mV/μm step
Recommended sensor	IN-xxx proximity sensor
Speed ranges	50/100/200/500/1000/2000/5000/10000 rpm
Speed measuring:	30 ... 65000 RPM (speed lower than 30RPM are evaluated as zero)

11.3 Logical inputs DC characteristics

- Input level LOW $V_{ILmin} = 0,0 V$

³ Typical power when all outputs are fully loaded

- Input level HIGH $V_{ILmax} = 1,6 \text{ V}$
 $V_{IHmin} = 2,5 \text{ V}$
 $V_{IHmax} = 24,0 \text{ V}$
- Input maximal current $I_{smax} = 3 \text{ mA}$
- Max. load for +24V supply for logical inputs 60 mA

11.4 Communication

ModBus RTU

- Baud rates 4.8 / 9.6 / 19.2 / 38.4 / 76.8 / 115.2 kbps
- Parity even / odd / none

ModBus over Ethernet

- connector 10/100Base-T Ethernet with RJ45 connector

12 ACCESSORIES

We recommend following accessories to the 2500AP instrument:

- 1) Proximity sensor – e.g. IN-081 with linear operating range 1,5 mm. Sensor is supplied from the instrument using -24VDC supply. 2500AP instrument supports various sensors sensitivities (typically 8 mV/ μm) – up to 99,99mV/ μm .

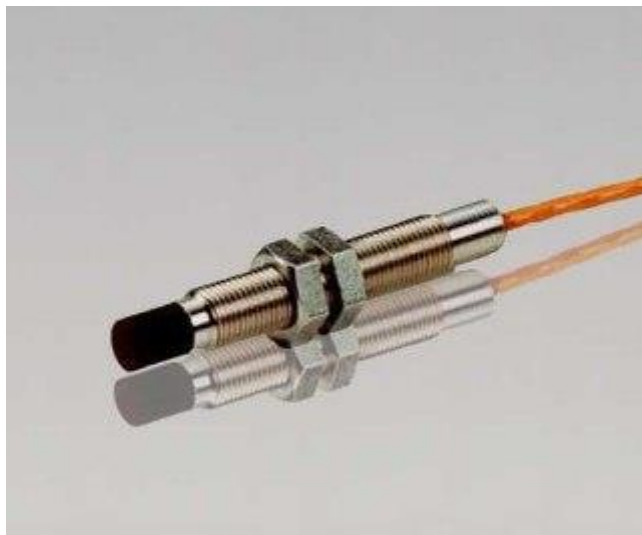


Fig. 21 - Proximity sensor IN-081

2) Converter ModBus/USB – product of ViDiTech



Fig. 22 - ModBus/USB converter from ViDiTech

The converter is used to connect the instrument to a PC (using a standard USB port). The converter supports all communication speeds, which are implemented in the instrument and is a simple and suitable solution to interconnect more instruments to one PC (e.g. managing instruments using Control Software).

For details visit <http://www.viditech.cz/products/data-converters/usb-rs485/>

3) Lambda power supply



Fig. 23 - Power supply unit

Power supply 230 V AC/24 V DC 10 W is ideal for powering one instrument from the distribution network 230 V AC. Can easily be fitted to the instrument using the DIN moulding. For powering more instruments, powerful supplies from the manufacturer's product line can be chosen (e.g. 30 W for 3 instruments 2500AP or 60 W for ca. 6 units).

For details see manufacturer's website <http://www.lambda.com/>

4) Control Software package – product of ViDiTech

Software working on the client – server model basis, is used for viewing, managing instruments, their control, setup, data reading and remote access to them. From measured values reports can be compiled or records saved to database.

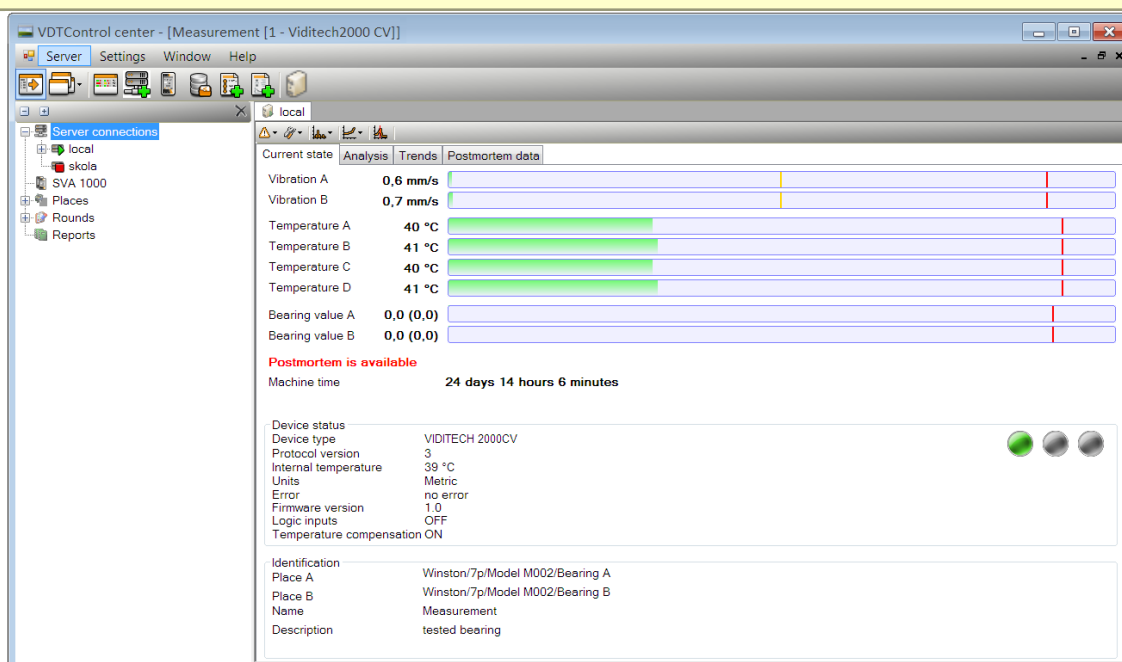


Fig. 24 - Preview of software (Control Center 2)

13 MENU STRUCTURE

